

What is claimed is:

- 1 1. An exhaust gas scrubber for removing a chemical component of an exhaust gas of
2 a process chamber located upstream of the scrubber by chemical vapor deposition
3 of a film, the scrubber comprising:
4 a. an enclosure defining a CVD chamber for receiving the exhaust gas, said
5 enclosure having a gas inlet for receiving the exhaust gas from the process
6 chamber and a gas outlet each in fluid communication with said CVD
7 chamber; and
8 b. at least one substrate contained within said enclosure between said gas
9 inlet and said gas outlet, said substrate having a film deposition surface for
10 receiving the film.
- 1 2. An exhaust gas scrubber according to claim 1, wherein said at least one substrate
2 is made of quartz.
- 1 3. An exhaust gas scrubber according to claim 1, wherein said at least one substrate
2 forms a baffle.
- 1 4. An exhaust gas scrubber according to claim 3, wherein said baffle includes a
2 plurality of apertures for allowing the exhaust gas stream to flow through said
3 baffle.
- 1 5. An exhaust gas scrubber according to claim 1, further comprising a plurality of
2 said substrates forming a series of baffles within said chamber.

1 6. An exhaust gas scrubber according to claim 5, wherein each baffle of said series
2 of baffles includes a plurality of apertures for allowing the exhaust gas stream to
3 flow through each of said series of baffles.

1 7. An exhaust gas scrubber according to claim 5, wherein said series of baffles are
2 positioned at an angle to define a serpentine or spiral passageway within said
3 CVD chamber.

1 8. An exhaust gas scrubber according to claim 1, further comprising a heating
2 element for heating at least one of said enclosure and said at least one substrate.

1 9. An exhaust gas scrubber according to claim 1, wherein said at least one substrate
2 is removable and reusable after the film has been removed.

1 10. An exhaust gas scrubber according to claim 1, wherein the chemical component
2 of the exhaust gas is silicon.

1 11. A system for processing a semiconductor wafer with a gas having a chemical
2 component, comprising:
3 a. a first enclosure defining a first chamber for receiving the semiconductor
4 wafer and the gas; and
5 b. a scrubber comprising:
6 i. a second enclosure defining a second chamber for receiving at least
7 a portion of the gas from said first chamber, said second enclosure
8 having a gas inlet in fluid communication with said first chamber
9 and said second chamber and a gas outlet in fluid communication
10 with said second chamber; and

11 ii. at least one substrate contained within said second chamber and
12 located between said gas inlet and said gas outlet, said substrate
13 having a film deposition surface for receiving a film composed of
14 the chemical component of the gas.

1 12. A system according to claim 11, further comprising a pump located between said
2 first chamber and said second chamber for pumping the gas from said first
3 chamber to said second chamber via said gas inlet.

1 13. A system according to claim 11, further comprising a heating element for heating
2 at least one of said second enclosure and said at least one substrate.

1 14. A system according to claim 11, further comprising an abatement device for
2 removing at least one component of the exhaust gas not deposited on said
3 substrate.

1 15. A scrubber for scrubbing a gas containing a non-toxic part and a toxic part, the
2 scrubber comprising:
3 a. a first enclosure defining a first chamber for receiving the gas, said first
4 chamber for removing at least a portion of the non-toxic part of the
5 exhaust gas by chemical vapor deposition; and
6 b. a second enclosure defining a second chamber in fluid communication
7 with said first chamber, said second chamber for receiving at least a
8 portion of the gas, said second chamber for removing at least a portion of
9 the toxic part from the gas.

- 1 16. A scrubber according to claim 15, further comprising a substrate located in said
2 first enclosure, said substrate for receiving by chemical vapor deposition a film
3 containing the non-toxic part of the gas.
- 1 17. A scrubber according to claim 15, wherein the non-toxic part comprises silicon.
- 1 18. A scrubber according to claim 15, wherein the toxic part comprises arsenic.
- 1 19. A method for scrubbing an exhaust gas of a manufacturing process, the exhaust
2 gas comprising a first chemical component and a second chemical component,
3 comprising the steps of:
4 a. flowing the exhaust gas through an enclosure defining a chamber and
5 containing at least one substrate; and
6 b. causing the first chemical component to be chemical vapor deposited onto
7 said at least one substrate.
- 1 20. A method according to claim 19, further comprising the step of removing the
2 second chemical component from the exhaust gas after performing step b).
- 1 21. A method according to claim 19, wherein step b) is performed by heating at least
2 one of said at least one substrate and said enclosure to at least 800°C.
- 1 22. A method according to claim 21, wherein step b) is performed by heating at least
2 one of said at least one substrate and said enclosure to at least 1100°C.
- 1 23. A method according to claim 19, wherein the first chemical component is non-
2 toxic and the second chemical component is toxic.

1 24. A method according to claim 23, wherein the first chemical component comprises
2 silicon and the second chemical component comprises arsenic.

1 25. A method according to claim 19, further comprising after step b) the steps of:
2 a. removing said at least one substrate from said enclosure;
3 b. cleaning said at least one substrate of any film deposited thereon;
4 c. installing said at least one substrate in said enclosure; and
5 d. again causing the first chemical component to be chemical vapor deposited
6 onto said at least one substrate.